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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,184	10/30/2003	Asaf Adi	IL920030025US1	8188
877 7590 07/10/2009 IBM CORPORATION, T.J. WATSON RESEARCH CENTER P.O. BOX 218 YORKTOWN HEIGHTS, NY 10598				
EXAMINER CHUMPTIAZ, BOB R				
ART UNIT 3629		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

iplawyor@us.ibm.com

Office Action Summary

Application No.

10/697,184

Applicant(s)

ADI ET AL.

Examiner

BOB CHUMPITAZ

Art Unit

3629

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4, 8-10 and 27 is/are pending in the application.
- 4a) Of the above claim(s) 1, 5-7, 11-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-4, 8-10 and 27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The following is a Final Office action in response to communication received April 7, 2009. Claims 1, 5-7 and 11-26 have been canceled. Claims 2-4 and 8-10 have been amended. Claim 27 has been added. Therefore, Claims 2-4, 8-10 and 27 are pending and addressed below.

Response to Amendments

In light to the cancellation of Claim 1 and newly submitted Claim 27, the 35 U.S.C. 101 rejections for Claims 2-4 and 8-20 are withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4, 8 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (US 2003/0055695 A1, hereinafter Mori) in view of J. Bailey, A. Poulouvassilis and P. Wood: "An Event-Condition-Action Language for XML" (Pub. 2002, hereinafter Bailey) in further view of H. Herbst, G. Knolmayer, T. Myrach and M. Schlesinger: "The specification of business rules: A comparison of selected methodologies" (Pub. 1994, hereinafter Herbst).

As per claim 27, Mori discloses: A method for processing information, comprising:

in a system comprising one or more processors, providing an active dependency integration unit, comprising a first program module that receives as input first events for processing together with a definition of dependencies between business components in a business model in order to monitor a propagated impact between the business components ([paragraph] [0009-10] inputting means for inputting tasks (work items) of a project; memory means for storing a dependence relation among tasks; memory means for storing information about an output of each task; process model generation means for generating a process model having the dependence information among the task and the information about the task output and the resource);

Mori does not expressly disclose “providing in the system a situation management unit, comprising a second program module that detects situations comprising specified combinations of second events and conditions.”

However, Bailey teaches event-condition-action (ECA) rules automatically perform actions in response to events; ECA have been used in many settings, including active databases, workflow management, network management, personalization, and specifying and implementing business processes; multiple ECA rules are defined within a system and the execution of one rule may cause an event which triggers another rule or set of rules (Pg. 486-487); and techniques for analyzing the triggering and activation dependencies between rules (Pg. 494).

In addition, Herbst teaches business rules expressed in different variants of Entity-Relationship-Models (ERM) and where an enhancement of ERM with respect to the concepts of events and rules is the Entity-Relationship-Rules Model (ER-RM). Herbst further teaches situation-action rules to control the states of entities, relationships and their attributes (Pgs. 9-11, Sections 2.1, 3.2.1-3.2.2). Furthermore, Herbst teaches different methodologies for modeling business rules (Pgs.1-2, Sections 1, 2.1). Lastly, Herbst teaches a conceptual processing model which supports triggering events, (synchronized) operations and resulting events (Pg. 6, Section 3.1.2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the project risk management method disclosed by Mori to include the event-condition-action methods as taught by Bailey and the entity relationship model and conceptual processing model as taught by Herbst, in order to provide the operation for modeling business dependencies which may help improve that understanding and interplay of dependencies between each rule-component and concentrate on the modeling of dynamics and the interdependencies between each rule-component.

Mori further discloses receiving in the active dependency integration unit a first event relating to at least a first business component ([0003] Design Structure Matrix (DSM) is a project management method that expresses the tasks involved in one project in a matrix form, mutual dependencies relations among the tasks are put into the corresponding positions of the matrix so that the input/output relations among the tasks can be clearly

expressed; [0025] dependency relation from the input task “merchandise concept generation” to the output task “car construction decision”; see also Claim 1 and associated text);

Bailey further teaches responsively to the first event and to the dependencies, propagating a change to at least a second business component (Pg. 486, ECA rules automatically perform actions in response to events; see also, Pg. 494, ECA rules have a simple syntax and are automatically invoked in response to events and where the specification of such events is indeed a part of the document object model; and a method for computing rule triggering and activation relationships which essentially focus on determining the effects of updates upon queries).

Herbst further teaches passing a second event indicative of the change to the situation awareness unit; and responsively to the second event, detecting a situation in the situation awareness unit (Pg. 8, a statecharts method used to describe the behavior and reaction of a system in terms of system states and corresponding state changing events; Pg. 12, the concept of entity life histories (ELH) which is an approach that concentrates on the expression of state changes of entities; these are e.g. a component of the entity-event modeling, which is a technique used to integrate the results of data and data flow modeling. The basic idea of ELH is simply to describe all events related to state changes in the life-cycle of an entity, i.e. from its creation over possible changes to its deletion).

The Mori/Bailey/Herbst combination do not expressly disclose responsively to the situation, conveying a third event from the situation awareness unit to the active dependency integration unit.

However, Mori discloses a model representing dependence relations among tasks (Abstract); and Bailey teaches ECA rules that automatically perform actions in response to events provided (Pg. 486) techniques for analyzing the triggering and activation dependencies between rules (Pg. 494). In addition, Herbst teaches a business ECA mechanism, where events are an instantaneous happening of interest to the enterprise and are attached to a time point, conditions define what has to be checked and actions determine what has to be done (Pg. 1); and a conceptual model where simulating the behavior of logically dependent event action sequences or automatically generating rule preserving implementations is made possible (Pg. 2). Herbst further teaches data flow diagrams which specify the data flow between processes or between one process and either an external unit or data store (Pg. 5). Lastly, Herbst teaches an entity relationship rules model where situation-action rules control states of entities, relationships and there attributes (Pg. 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the dependency relation model of Mori to include the event-conditional-action rules as taught by Bailey and the process dependencies between

business rules as taught by Herbst in order to adequately formulate business dependency events rules that counter respond to any change of an event.

Mori further discloses outputting a functional state of the business model responsively to at least the third event (Claim 7: generating a process model having information representing dependence relations among the tasks, information about an output of each task).

As per claim 3, Bailey further teaches further including receiving as input rules that describe how a given event affects a specified business component (Pg. 486, col. 2 – Pg. 487, col.1 Event-condition-action (ECA) rules automatically perform actions in response to events; ECA rules are used in active databases, workflow management, network management, personalization, and specifying and implementing business processes; the execution of one rule may cause an event which triggers another rule or set of rules; see also, Pg. 494, col. 1-2 techniques for analyzing the triggering and activation dependencies; the specification of such events is part of the document object model; execution model of ECA rules. The Examiner considers the process where ECA rules automatically perform actions in response to events to encompass one or more business changes, e.g. a single change in production can affect hundreds of business component operations).

As per claim 4, Bailey further teaches further including receiving as input rules that describe when a change in a business component triggers an event (pg. 486, col.2 ECA rules used for

many settings, including active databases, workflow management, network management specifying and implementing business processes, and the execution of one rule may cause an event which triggers another rule or set of rules; see also, pg 487, col. 1, the use of XPath and XQuery languages to specify events, conditions and actions within ECA rules; see also, pg. 490, col. 2, the triggering and activation relationships between pairs of rules; see also, pg. 494, col. 1 technique for analyzing the triggering and activation dependencies).

As per claim 8, Bailey further teaches wherein the definition includes predefined dependency type semantics (Pg. 494, col. 2 method for computing rule triggering and activation relationships focus on determining the effects of update queries....query optimization strategies are possible...given a set of pre-defined queries, allow one to retain in memory only documents which are relevant to computing these queries...as updates are made....analyzing the effects of the updates on the collection of pre-defined queries).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Bailey in further view of Herbst and in further view of Parad (US 5,369,570).

As per claim 2, the Mori/Bailey/Herbst combination discloses claim 27 as rejected above, where Bailey further teaches ECA rules used for many settings, including active databases, workflow management, network management specifying and implementing business processes, and they are also used in conventional warehouses for incremental maintenance of materialized views, for validating and cleansing of the input data streams and for maintaining audit trails of the data (Pg.

486), and where XPath and XQuery languages are used for specifying events, conditions and actions within ECA rules (Pg. 487), and the technique for analyzing the triggering and activation dependencies (Pg. 494), but does not expressly disclose receiving as input event types, business component types, and dependency types associated with a business domain.

However, Parad teaches a system and method for prospective scheduling, monitoring, and control of a plurality of independent and interdependent resources to accomplish predetermined goals in a timely and efficient manner (col.4, lines 18-39). In addition, Parad teaches resource data table that contains all the information about each resource that is retrieved, managed, and updated in its entirety, and each instance of a resource table contains resource characteristics, rules that govern its utilization, timing transforms, dependent resource requirements (relationships), and events of supply and demand (col. 16, line 2 - col. 17, line 64). Furthermore, Parad teaches a transaction table entry that references its dependent resource relationship and points to the event change table where its parent's event changes are defined (col. 21, lines 10-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Mori/Bailey/Herbst combination to include entries for event change tables as taught by Parad in order to provide a method for inputting relational event data that will help improve resource management through effective decision support and that continuously adjusts in response to changing requirements, conditions, and constraints.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Bailey in further view of Herbst and in further view of Nye (US 6,341,279 B1).

As per claims 9 and 10, Mori discloses a project risk management method, but does not expressly disclose:

“wherein said dependency type semantics include a mandatory logical operator that logically couples one or more source components of the dependency to one or more targets of the dependency and sets the targets to a worst state of the source components,” and “wherein said dependency type semantics include an “N out of M” logical operator, wherein N is less than M, that logically couples M source components of the dependency to one or more targets of the dependency and sets the targets to ok if at least N of the source components are ok and otherwise sets the targets to “fail”.”

However, Bailey teaches the procedure for determining non-independence of an insertion from a condition, “c”, involves constructing from “c” a set C of conditions, each of which is an XPath expression without any qualifiers i.e. a distinguished path. The objective is that condition c can change from False to True as a result of an insertion only if at least one of the conditions in C can change from False to True as a result of the insertion (Pg. 492, Section 3.2).

In addition, Herbst teaches a conceptual modeling approach which supports triggering events, (synchronized) operations and resulting events, and where an operation consists of one or more tasks that are based on management rules and are executed sequentially, and where every operation may lead to different events according to issuing rules which may be e.g. be 'operation has been successful' or 'operation has failed': the abbreviation NR signifies that no response follows (Pg. 6, Section 3.1.2), In addition, Herbst teaches data modeling formalism, PN are augmented with token values to specify constraints concerning object state sequences generated by events and object type dynamics in databases (Pg.6, Section 3.1.4, see also Fig. 4 and associated text).

Furthermore, Nye teaches a method that allows a developer to add complex dependency logic to an existing database without having to modify the underlying structure of the database, where each event in the event model has an associated event type and contains dependency logic that interrelates the events in the event model with one another (Abstract & col. 5, lines 33-37).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mori to include event condition action rules as taught by Bailey and logical dependent rule transactions as taught by Herbst and complex dependency logic as taught by Nye in order to formulate one or more issues arising in a business plan using logical reasoning techniques to identify options relating to the business plan.

Please Note:

Examiner has pointed out particular references contained in the prior arts of record in the body of this action for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the response, to consider fully the entire references as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior arts or disclosed by the examiner.

Applicant(s) are reminded that optional or conditional elements do not narrow the claims because they can always be omitted. See *e.g.* MPEP §2106 II C: “Language that suggest or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. “As a matter of linguistic precision, optional elements do not narrow the claim because they can always be omitted.” *In re Johnston*, 435 F.3d 1381, 77 USPQ2d 1788, 1790 (Fed. Cir. 2006)(where the Federal Circuit affirmed the Board’s claim construction of “further including that said wall may be smooth, corrugated, or profiled with increased dimensional proportions as pipe size is increased” since “this additional content did not narrow the scope of the claim because these limitations are stated in the permissive form ‘may.’ ”).

Functional recitation(s) have been considered but given less patentable weight because they fail to add any steps and are thereby regarded as intended use language. A recitation of the intended use of the claimed invention must result in additional steps. See *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1375-76, 58 USPQ2d 1508, 1513 (Fed. Cir. 2001) (Where the language in a method claim states only a purpose and intended result, the expression does not result in a manipulative difference in the steps of the claim.).

Response to Arguments

Applicant's arguments filed April 13, 2009 have been fully considered but they are not persuasive. In the remarks, Applicant argues that:

New Claim 27:

(1) Bailey and Herbst both describe event-condition-action methods, which could be considered to resemble the situation awareness unit in claim 27. Neither of these references, however, describes an active dependency integration unit (or any other entity that performs the functions of such a unit). The cited references certainly do not suggest the sort of iterative interrelationship between the situation awareness unit and the active dependency unit that is recited in claim 27.

In response to argument (1), based on the new grounds of rejection argument (1) is moot. See rejection above.

Claim 2:

(2) Parad, like Bailey and Herbst, fails to teach or suggest the use of an active dependency Integration unit.

In response to argument (2), based on the new grounds of rejection argument (2) is moot.
See rejection above.

Claims 3-4, 8-10:

(3) Notwithstanding the patentability of independent claim 27, the dependent claims in this application are believed to recite independently-patentable subject matter. For example, claim 10 has been amended to clarify the meaning of an "N out of M" logical operator, based on the embodiments illustrated in Figs. 5-7 of the present patent application. The cited references neither teach nor suggest the use of such an operator.

In response to argument (3), based on the new grounds of rejection argument (3) is moot.
See rejection above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BOB CHUMPITAZ whose telephone number is (571)270-5494. The examiner can normally be reached on M-TR: 7:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN WEISS can be reached on (571) 272-6812. The fax phone number for the organization where this application or proceeding is assigned is 571-270-6494.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

B. C.
Examiner, Art Unit 3629

/JOHN G. WEISS/
Supervisory Patent Examiner, Art Unit 3629